



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> Anne M. Lillis	<b>Project Number</b> <b>J0217</b>
<b>Project Title</b> <b>What Ingredients in Anaerobic Digestion Produce More Methane?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to determine what ingredients (oranges, carrots, or sweet potatoes) produced the most methane when put through the process of anaerobic digestion.</p> <p><b>Methods/Materials</b> To do this project, I built three, identical anaerobic digesters, and put four pounds of oranges, sweet potatoes, and carrots separately into the anaerobic digesters, using 5-gallon buckets, tubes, caulking, etc. and let them sit for two weeks. I then measured the amount of methane that had built up inside of a balloon, recorded the data, and then repeated the process over again. In all, I did the experiment three times, recorded the data, and analyzed the results.</p> <p><b>Results</b> The results showed that oranges produced the most methane.</p> <p><b>Conclusions/Discussion</b> My results did and did not support my hypothesis. I thought that sweet potatoes would produce the most, carrots the least, and oranges in the middle. I was wrong where oranges produced more than sweet potatoes, but right in the fact that carrots produced the least.</p>	
<b>Summary Statement</b> My project is about experimenting with different ingredients to determine which could be used as clean, renewable energy producers.	
<b>Help Received</b> Father helped with the construction of anaerobic digesters; mother gathered produce and helped with presentation board layout; brother helped get the lids off my anaerobic digesters; teacher, Mr. Scott, helped me along the way; and grandma provided a kitchen scale.	